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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/651,115	08/28/2003	Keith D. Mease	TN285	7863

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Unisys Corporation
Attn: Lise A. Rode
Unisys Way, MS/E8-114
Blue Bell, PA 19424-0001

EXAMINER

PAPE, ZACHARY

ART UNIT	PAPER NUMBER
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2835

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/651,115	Applicant(s) MEASE ET AL.	
	Examiner Zachary M. Pape	Art Unit 2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The following detailed action is in response to the correspondence filed 8/31/2006.

Drawings

1. The drawings are objected to because it is unclear to the examiner, given Fig 1 of the present drawings, how the recess is defined by the base as described in claim 6. For the purposes of examination the Examiner has considered the limitation as recited in claim 6.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 20 is objected to because of the following informalities:

Claim 20 does not clearly distinguish if it is a dependent of claim 18, or if it is an independent claim which includes all the limitations of claim 18. For the purposes of examination, claim 20 is interpreted as being a dependent of claim 18.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 9-12, 14-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Hughes et al. (US 5,883,784).

With respect to claim 1, Hughes et al. teaches a heat sink (10) configured to support an edge (82) of a circuit card (80), said heat sink comprising: a thermally conductive base (See present office action Fig 1 below); a plurality of thermally conductive heat dissipating fins (See POA Fig 1 below) extending perpendicularly from

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said base; and one or more recesses (16) at least partially defined by adjacent parallel faces of said fins (See Hughes et al. Fig 2) the recesses having a depth smaller than the height of said fins (See Fig 2), said one or more recesses being configured to support the edge of the circuit card (Column 3, Lines 55-57).

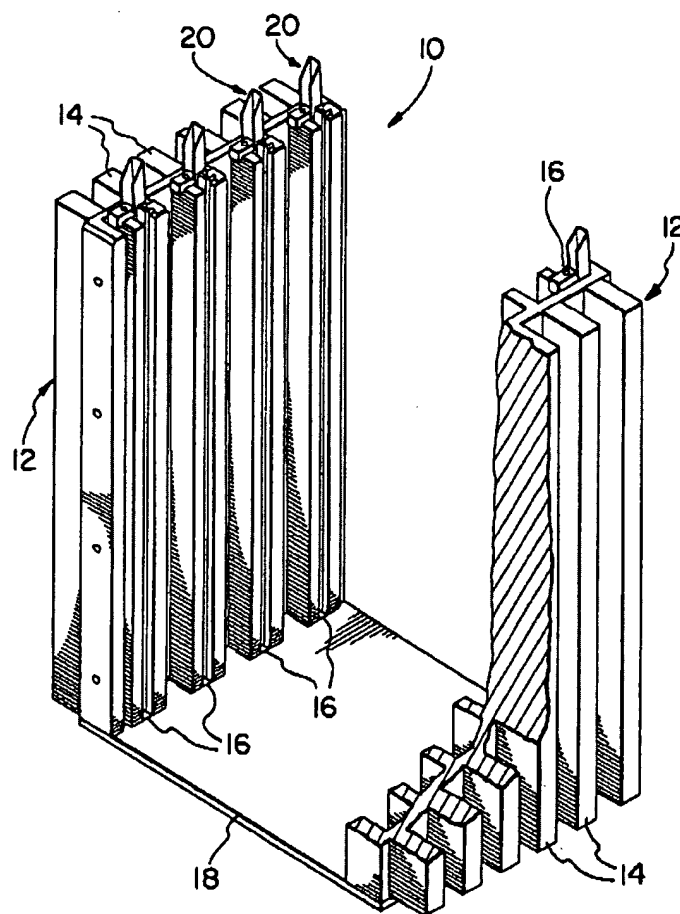


FIG. 1

With respect to claim 2, even though the claims are limited and defined by the recited process, the determination of patentability of the product is based on the product

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itself, and does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985).

With respect to claim 3, Hughes et al. further teaches that the one or more recesses (16) are further configured to support the edge (82) of the circuit card (80) in sliding association with said heat sink (See Hughes et al. Fig 6).

With respect to claim 4, Hughes et al. further teaches that the recess (16) is a slot configured to guide the edge (82) of the circuit card (80) during sliding movement of the circuit card (See Fig 6).

With respect to claim 5, Hughes et al. further teaches a face disposed opposite said fins (See POA Fig 1 above), said base being configured to be mounted with said face abutting a heat-generating component (See POA Fig 1 above). [The Examiner additionally notes that, it has been held that the recitation that an element is "configured to" perform a function is not a positive limitation but only requires the ability to so perform and is therefore given little patentable weight. *In re Hutchison*, 69 USPQ 138.]

With respect to claim 6, as best can be understood by the Examiner, Hughes et al. further teaches that the recess is defined by the base (See Hughes Fig 2).

With respect to claim 7, Hughes et al. further teaches that the recess (16) is defined by a plurality of said fins (See Hughes Figs 1 and 2).

With respect to claim 9, Hughes et al. further teaches that the fins (See POA Fig 1 above) are oriented substantially parallel to one another (See Hughes Figs 1 and 2).

With respect to claim 10, Hughes et al. further teaches a method for supporting a circuit card in a computer system, the method comprising performing in order the steps of: affixing in a computer system (Column 1, Lines 9-112) a heat sink (12) having a recess (16) configured to receive an edge (82) of a circuit card (80) such that the recess orients the circuit card to enable mating the circuit card with a connector (Column 3, Lines 55-61), the recess at least partially defined by at least one of a plurality of thermally conductive heat dissipating fins (See POA Fig 1 above), the recess having a depth smaller than the height of said fins (See Hughes Fig 2); and positioning the edges of the circuit card in the recess (See Hughes Fig 6).

With respect to claim 11, Hughes et al. further teaches that said positioning step comprises sliding the circuit card in the recess (See Hughes Fig 6, see also Column 5, Lines 23-29).

With respect to claim 12, Hughes et al. further teaches said affixing step comprises affixing the heat sink (12) to a heat-generating component (18).

With respect to claim 14, Hughes et al. further teaches that the circuit card (80) carries at least one heat generating component (Column 1, Lines 9-14), and said positioning step comprises thermally coupling the heat generating component to the heat sink when the circuit card is positioned in the recess. (Column 3, Line 62 – Column 4, Line 3).

With respect to claim 15, Hughes et al. further teaches a circuit board assembly comprising: a circuit board (80); a heat generating component mounted on said circuit board (Column 1, Lines 9-14); and a heat sink (10) thermally coupled to said heat

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generating component (Column 3, Line 62 - Column 4, Line 3) and having a plurality of fins (See POA Fig 1 above) for dissipating heat having faces parallel to one another (See Hughes Fig 2), said parallel faces of the fins defining a recess (16) for supporting and guiding an edge (82) of a circuit card (80), said recess at least partially defined by at least one of said fins and having a depth smaller than the height of said fins (See Hughes Fig 2).

With respect to claim 16, Hughes et al. further teaches that the circuit card (80) comprises an edge portion (82) in sliding association with said recess (See Hughes Fig 6).

With respect to claims 17 and 21, Hughes et al. further teaches a connector (78) configured for electrically coupling said circuit card to a computer system (Column 3, Lines 55-61), said recess (16) of said heat sink being oriented to guide said circuit card for coupling said connector to said computer system (Column 3, Lines 55-61).

With respect to claim 18, Hughes et al. further teaches a heat sink (10) guiding one or more circuit cards (80) and transferring heat from one or more heat-generating components (Column 3, Line 62 – Column 4, Line 3), said heat sink comprising: a surface (Base as illustrated in POA Fig 1 above) defining one or more slots (16) configured to guide an edge of a circuit card; and heat dissipating fins (See POA Fig 1 above, also 14) thermally coupled to said surface, said one or more slots at least partially defined by adjacent parallel faces of said fins (See Hughes Figs 1 and 2), said one or more slots (16) having a depth smaller than the height of said fins (See Hughes

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Fig 2), said heat sink being configured to provide a thermal path from a heat-generating component to said fins via said surface (Column 3, Lines 62 – Column 4, Line 3).

With respect to claim 19, Hughes et al. further teaches a surface (Flat faces of element 14) disposed opposite said slots and configured to be mounted in thermal contact with said one or more heat-generating components.

With respect to claim 20, Hughes et al. further teaches that the heat sink of claim 18 having a substantially constant cross section shape (See Hughes Figs 1 and 2).

Claims 1 (Alternatively) and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Lo (US 6,360,812).

With respect to claim 1, Lo teaches a heat sink (10) configured to support an edge (74) of a circuit card (70), said heat sink comprising: a thermally conductive base (Generally 20); a plurality of thermally conductive heat dissipating fins (22) extending perpendicularly from said base; and one or more recesses (See Present office action Fig 1 below) at least partially defined by adjacent parallel faces of said fins (See Fig 1 below) the recesses having a depth smaller than the height of said fins, said one or more recesses being configured to support the edge of the circuit card.

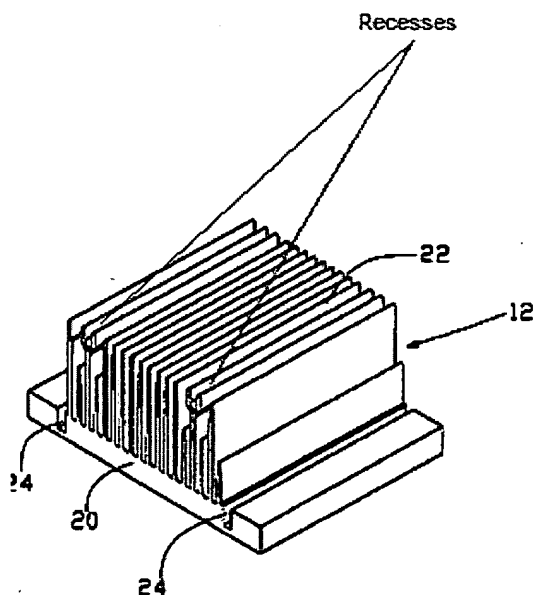


Fig 2

With respect to claim 7, Lo further teaches that the recess is defined by a plurality of said fins (As illustrated in Fig 2 above).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10, 12 (alternatively) and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lo (US 6,360,812) in view of Hughes et al. (US 5,883,784).

With respect to claim 10, Lo teaches a method for supporting a circuit card in a computer system, the method comprising performing in order the steps of: affixing in a

computer system a heat sink (12) having a recess (See POA Fig 2 above) configured to receive an edge of a circuit card such that the recess orients the circuit card to enable mating the circuit card with a connector, the recess at least partially defined by at least one of a plurality of thermally conductive heat dissipating fins (22), the recess having a depth smaller than the height of said fins (See Lo Fig 1). Lo is silent as to a circuit card, and position the edge of the circuit card in the recess. Hughes et al. teaches the conventionality of a circuit card edge (82) which is positioned within a recess (16) of a heat sink (12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to mount a circuit board in a heat sink recess as taught by Hughes with the teachings of Lo to make economic and efficient use of a heat sink (Column 2, Lines 3-7).

With respect to claim 12, Lo further teaches said affixing step comprises affixing the heat sink (12) to a heat-generating component (Column 2, Lines 18-20).

With respect to claim 13, Lo further teaches that the heat-generating component is mounted on a circuit board (80, See Fig 3), and said affixing step comprises affixing the heat sink (12) with the recess disposed opposite the heat-generating component (See Lo Fig 3).

Response to Arguments

5. Applicant's arguments, see pages 7-8, filed 8/31/2006, with respect to the rejection(s) of claim(s) 1-7, 9-21 in view of Amaro et al. have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However upon further

consideration of the newly added limitations a new ground(s) of rejection is made in view of Hughes et al. (US 5,883,784) and Lo (US 6,360,812).

6. Applicant's arguments filed 8/31/2006 with respect to the rejection of claims 1 and 7 under Lo have been fully considered but they are not persuasive.

With respect to the Applicants' remarks to the rejection of claim 1 in view of Lo, the Examiner respectfully notes that the fins (22) of Lo clearly extend perpendicularly from the base (20) as claimed (See Fig 1 of Lo). The Applicant's note that the fins come together at the bottom (See Page 7 of the presently filed remarks) however such an observation has no bearing on whether or not the fins are actually perpendicular to the base as claimed.

7. Applicant's arguments filed 8/31/2006 with respect to the objection to the drawings have been fully considered but they are not persuasive. The Examiner notes that the drawings have not been amended as requested by the Examiner. The Examiner further notes that the description, "Recess 16 is defined by the base in that the bottom of the recess is defined by the base" is not sufficient to overcome the present drawings objection. Fig 1 of the present drawings appears to detail that the recess is defined by two directly adjacent fins with a raised portion which extends from the base, not by the base as alleged.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary M. Pape whose telephone number is 571-272-2201. The examiner can normally be reached on Mon. - Thur. & every other Fri. (8:00am - 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached at 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ZMP

Lisa Lea Edmonds
LISA LEA-EDMONDS
PRIMARY EXAMINER